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HUMBOLDT COUNTY AIR POLLUTION CONTROL DISTRICT NEWSLETTER

Vol. 1, No. 1 Eureka, California First Quarter - 1969

C. P. Sassenrath, Director (707) 443-3091

NEW DEPARTMENT UNDER WAY

This bulletin is the first formally published information release of the newly reactivated Humboldt County Air Pollution Control District. We hope that in the future we will be able to publish a quarterly summary and review of the activities of the local Air Pollution Control District to better inform the citizens and industries in Humboldt County about recent developments in air pollution control. New programs and legislation at the state and federal level will also be reviewed from time to time.

By publishing and circulating this bulletin, we will be able to advise all our loyal readers about changes that may be contemplated in the Rules and Regulations of the Humboldt County Air Pollution Control District. Current enforcement policies will frequently be discussed, in addition to any rulings of the Humboldt County Air Pollution Control District Hearing Board. We will also present data summaries of air quality surveys taken by the staff of the local district and show comparisons with other regions of the state.

During January, 1969, office facilities in an existing county building located at 5630 South Broadway were refurbished to accommodate the proposed staff. Most of February was devoted to assembling the files that have been passed on by the local Health Department and actually setting up the required office organization. A very thorough review has been made of past information with regard to pulp and paper odor problems and the smoke and fallout problems associated with the tepee burners.

(Continued on Page 2)

INTRODUCTION OF STAFF

The staff of the present Air Pollution Control District consists of the Air Pollution Control Director, an Air Pollution Chemist, a Field Inspector, and a Stenographer. As of March 24, all of these positions have been filled.

In an effort to introduce the qualifications of the staff personnel, we are presenting the following brief biographical sketches:

Our Director, Charles Sassenrath, received his B.S. Degree in chemical engineering from U.C. Berkeley in 1953 and his M.S. in chemical engineering from U.S.C. in 1959. He has had 15 years of experience in petroleum refining, chemical plant design, and air pollution control and is a registered professional engineer in the State of California.

Mr. Sassenrath comes to this area from Frederiksen Engineering Company in Oakland. His wife, Carolyn, and their four children will be moving to Humboldt County as soon as the present school term is completed.

Mel Edlund, our chemist, graduated from U.C. Berkeley, College of Chemistry, in 1952. He has had 17 years experience in research and analytical chemistry, a large portion of which included radiological environmental sampling.

Mr. Edlund has worked for the State of California Department of Public Health in Berkeley and comes to us directly from the U.C. Medical Center in San Francisco. Mel, his wife Barbara, and their two sons have recently moved into their home in the Elk River Valley.

Our Air Pollution Inspector, Kenneth

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REVISED APCD REGULATIONS PRESENTED

At the April 1, 1969, meeting of the Humboldt County Board of Supervisors extensive revisions and additions were proposed to the Rules and Regulations of the Humboldt County Air Pollution Control District.

These revisions included a more complete definition of the administration of the existing permit system, similar to the practices of other California Counties. The prohibitions were revised to more closely follow the State of California Health and Safety Code and to coincide with air quality criteria being established by the California Air Resources Board. Of particular interest to residents of Humboldt County is the proposed Rule 57, establishing operating standards for pulp and paper mills. This rule, which sets emission limits for release of odorous sulfur compounds characteristic of the kraft pulping operation, closely parallels a similar regulation recently adopted by the State of Oregon.

A formal hearing date for the proposed revisions has been set for April 15, 1969, at 2:00 p.m. in the Board of Supervisors Chambers at the Humboldt County Courthouse.

(New Department, Cont. from P. 1)

Graphs have been prepared showing the relationship between the quantity of malodorous materials released by the mills, weather conditions, stack heights and the resultant odor concentrations to be anticipated. These plots correlate very favorably with the odor response data which had been accumulated by the Humboldt County Health Department during the past three years. This data, in conjunction with the latest pulp mill odor control technology, was used as the basis for newly proposed Air Pollution Control Regulations for Humboldt County.

TEPEE BURNERS SURVEYED

Questionnaires have been sent to all owners and operators of tepee burners in Humboldt County in order to determine the location of all burners now in operation. From this inventory we plan to develop estimates of the total quantity of wood waste presently being burned each day and its contribution to fallout and visibility reduction in various local areas. Through the cooperative efforts of industry, we hope to investigate new wood waste utilization methods and assist the mill operators in improving the combustion efficiency of existing burners.

Our field inspector will be making regular visits to the many tepee burners located within the county as we proceed with various phases of our proposed studies. We welcome any and all suggestions which our readers may offer in furtherance of our objective -- cleaner air for the citizens of Humboldt County.

(Introduction of Staff, Cont. from P. 1)

Corbin, comes to the area from Folson, California, after spending 10½ years with Aerojet General Corporation in Sacramento. Much of that time he spent as leadman and inspector on the rocket motor assembly line.

Mr. Corbin received his A.A. Degree from Sierra College and has done further work at Sacramento State College. He and his wife, Doris, and their two daughters moved into the area about six weeks ago.

To complete our staff, Sherley Lovelace came out of a four-year retirement. She moved into this area from Logan, Utah, 3½ years ago with her husband, Jim, and two children.

Mrs. Lovelace has had six years of secretarial experience, the latest with Thiokol Chemical Corporation in Brigham City, Utah. She has attended Lufkins Business College, Monterey Peninsula College and the College of the Redwoods.

TITLE NEEDED

As with any other newly initiated publication, we are desperately in need of a name for this newsletter. If you have any suggestions along this line, we would greatly appreciate hearing from you. To give you an idea of what some of the other titles are for air pollution publications of various local districts, the one in the San Francisco Bay Area is called "Air Currents." The one in the Seattle-Puget Sound area is called "Clear Horizons." This ought to get some of our more imaginative readers thinking, and we would certainly welcome any suggestions for an appropriate title which you may have to offer.

ODOR COMPLAINTS DOWN

The number of odor complaints for the past three months has been relatively low when compared to past years' data. We believe some of the reasons for this are: (1) Prevailing winds blowing smoke seaward, (2) Confusion of moving from the Health Department and subsequent lack of a new telephone number, and (3) Patience on the part of many who were allowing us time to set up our new offices. We want to mention that we are now accepting calls at 443-3091; do feel free to call in when the odor is troublesome.

NUMBER OF COMPLAINTS FOR 1969 TO DATE

JANUARY

Date:	1	2	3	4	5	6
No.	3	2	5	5	8	2

FEBRUARY

Date:	11	13	18	19	20	21	28
No.	1	2	2	3	2	2	2

MARCH

Date:	1	5	6	7	8	9	10	11	
No.	1	1	3	4	3	1	3	2	
Date:	13	19	21	23	24	25	26	27	28
No.	1	1	2	2	6	8	10	5	7

REQUESTS FOR FUTURE MAILING

Our mailing list is compiled from the best sources which we had available, but we are certain it is out of date in many instances. In order to establish an updated mailing list for this newsletter, we wish to request that anyone desiring to receive our quarterly publication fill in and mail the following form to this office.

HUMBOLDT COUNTY
AIR POLLUTION CONTROL DISTRICT
5630 SOUTH BROADWAY
EUREKA, CALIFORNIA 95501

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HUMBOLDT COUNTY

AIR POLLUTION CONTROL DISTRICT

N E W S L E T T E R

Vol. 1, No. 2 Second Quarter - 1969

5630 South Broadway, Eureka, California 95501

C. P. Sassenrath, Director (707) 443-3091

AIR POLLUTION STUDIES STARTED

The Humboldt County Air Pollution Control District staff has now been at full strength for slightly over three months. During this period new air pollution control regulations have been prepared and adopted by the Humboldt County Board of Supervisors. Conferences have been held with both Georgia-Pacific and Crown Simpson management personnel to discuss future plans and objectives to further reduce the typical kraft pulp mill odors in the local community. Laboratory equipment has been ordered to perform both general air pollution analyses and the involved sulfur chemical determinations required for a complete definition of the air pollution levels in Humboldt County. Our original tepee burner inventory has been completed and we are working on additional studies of waste wood utilization.

Anyone interested in meeting our staff or viewing our refurbished office facilities at 5630 So. Broadway is cordially invited to drop by for a visit.

PULP MILL PROGRESS

Georgia-Pacific and Crown Simpson are pushing ahead toward compliance with the revised Rules and Regulations of the Humboldt County Air Pollution Control District by the January 1, 1970,

(Continued on page 2)

REVISED APCD REGULATIONS ADOPTED

On May 6, 1969, the Humboldt County Board of Supervisors adopted extensive revisions to the regulations of the air pollution control district. These regulations allow local industry approximately an eight-month period (until the first of January, 1970) within which to bring their operations into compliance except for uncontrolled open burning of rubbish. The restriction on burning rubbish has been in effect since August 11, 1964, but was never actively enforced. After further details are finalized with the State Division of Forestry and the local fire districts, violation notices will be issued to flagrant violators of this open burning restriction outlined in Rule 53 of the revised rules and regulations.

Rules 50 and 57 should be the two other major concerns of the local control district. Rule 50 is the same as the smoke restriction specified in Section 24242 of the Health and Safety Code of the State of California. This restriction will be applicable to tepee burners, power boilers, and other operations which create excessive smoke.

Rule 57, designed to restrict the odor emissions from kraft pulp mills, will require extensive testing and surveillance on the part of the local control district and both pulp mills. The emission limits specified in Rule 57

(Continued on page 3)

(Pulp Mill Progress, Cont. from P. 1)

deadline. Both mills have completed their installation of Barton titrators in the main furnace stack. These instruments, which continuously measure the concentration of sulfur compound emissions from the recovery furnaces, will provide a permanent record of odor emissions and alert the plant operators of furnace upset conditions. Monthly summaries of the data obtained from the titrators are already being submitted to the air pollution control district.

Georgia-Pacific recently announced further progress in their black liquor oxidation process with the discovery that a secondary oxidation step will greatly reduce the sodium sulfide concentration in the black liquor and subsequently lower the emission of odorous material from the recovery furnace stack. Laboratory studies have been completed on this new oxidation process and a full-scale system is being developed.

Both mills are making additional laboratory and engineering studies of methods to reduce odor emissions from the pulp washing operation. These studies are directed at minimizing the release of odors from various low-level sources. Although these sources are not the major problem area, they all contribute to the characteristic kraft pulp mill odor. The local control district has assisted in the engineering aspects of these studies and plans to contribute laboratory assistance as soon as its newly ordered flame photometric analyzer arrives. This instrument will be used to calibrate the mills' continuous monitoring instruments and provide other required measurements for enforcement of the new regulations.

The average person breathes 35 pounds of air each day (that's six times as much as the food and drink he consumes).

AIR RESOURCES BOARD TO MEET IN EUREKA

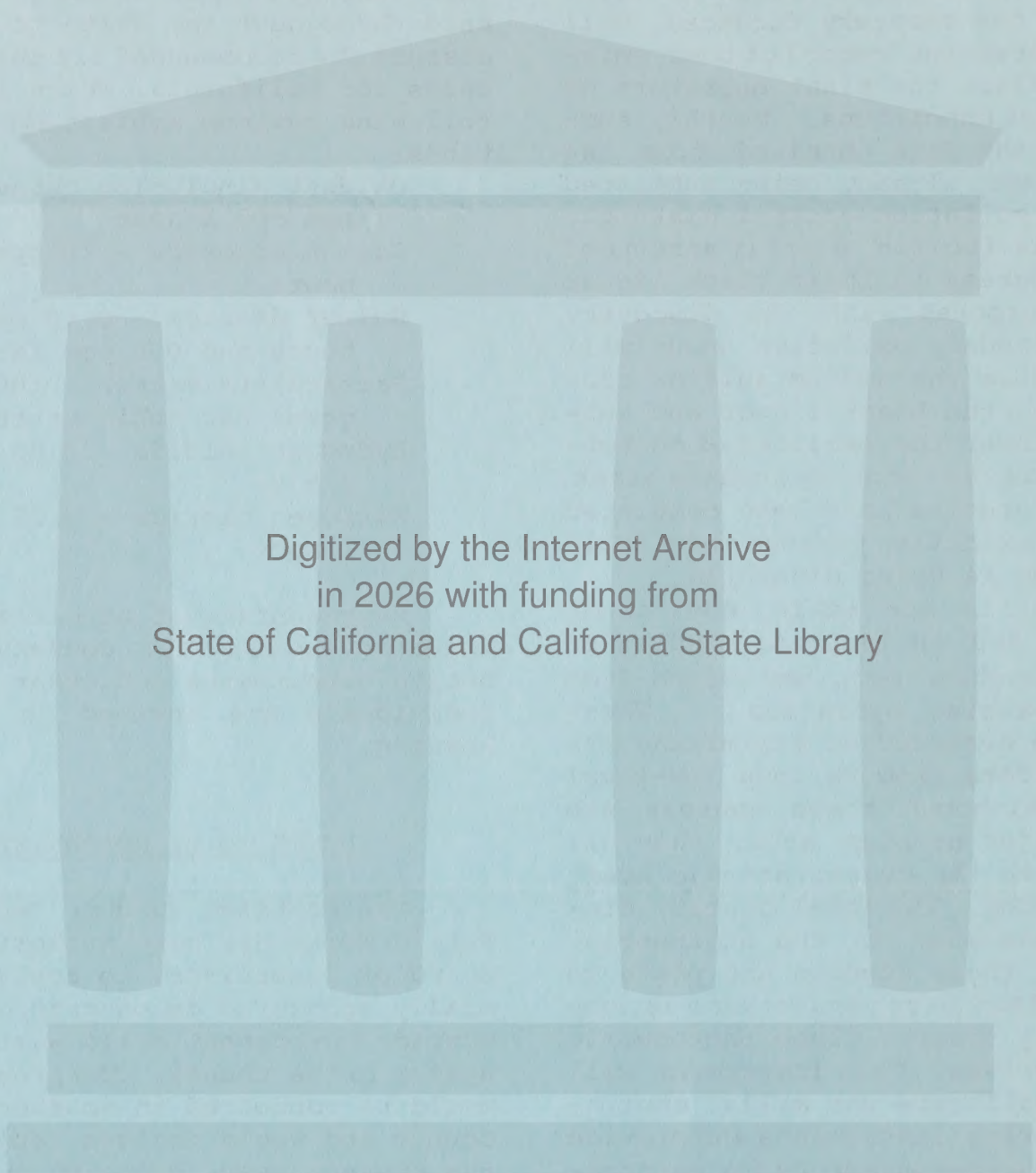
The California State Air Resources Board has scheduled a public hearing on July 25, 1969, in the Supervisors' Chambers of the Humboldt County Courthouse. This hearing will be one of several being held throughout the state to review and discuss the recommended air quality standards for California, which include the following maximum ambient air concentrations:

- Oxidant (including ozone) - 0.10 ppm for 1 hour
- Carbon monoxide - 20 ppm for 8 hours
- Sulfur dioxide - 0.10 ppm for 24 hours and 0.5 ppm for 1 hour
- Particulate matter - 100 micrograms per cubic meter
- Hydrogen sulfide - 0.03 ppm for 1 hour
- Nitrogen dioxide - 0.25 ppm for 1 hour

Representatives of citizen groups, industry, agriculture, conservationists, health departments and other interested individuals are invited to attend the hearing.

DUMPS TO BE MODERNIZED

The Humboldt County Department of Public Works has been authorized by the Board of Supervisors to apply for a federally sponsored demonstration grant to upgrade the present solid waste disposal system in the county. The proposed study would be conducted in southern Humboldt County and would include replacement of the present open dumps by a series of enclosed containers. These containers would be picked up on a weekly schedule and transported to a centrally located sanitary landfill. If successful, this system will not only improve the present sanitation problems, but also eliminate many present open burning locations which are a concern of this department and the California Division of Forestry.



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(Regulations, Cont. from P. 1)

are in close agreement with recent sulfur emission restrictions adopted in Oregon and Washington.

The remaining newly adopted rules outline the administration of the permit system and procedures for holding meetings of the Air Pollution Control District Hearing Board relating to regulation violations or variance requests. This hearing board will be appointed by the Humboldt County Board of Supervisors within the next few months and will consist of two attorneys and one engineer.

A public hearing will be held annually on the anniversary date of the adoption of these rules and regulations to review current air pollution control technology, to examine the adequacy of the emission limits, or to adopt new or revised standards.

Persons planning to build, alter or operate any equipment which causes or controls the emission of air contaminants should pay particular attention to Rule 10, which outlines the permit application procedures.

COMPLAINT SCOREBOARD

The number of odor and smoke complaints for the past three months has increased significantly from the first quarter with the onset of warmer weather and more frequent breezes from the north and west. We have especially noticed a greater public awareness of the general smoky condition that occurs in the Humboldt Bay Area during periods of relatively calm weather.

The total number of complaints for each category during this period is as follows:

	Odor	Tepees	Other
April	90	5	4
May	84	1	2
June	48	2	1
3-month totals	222	8	7

TEPEE BURNER INVENTORY

Response to our initial tepee burner questionnaire was most gratifying, with excellent cooperation from the mill owners. We have now inspected all of the many tepees scattered throughout Humboldt County -- from Orleans in the north to Whitethorn in the south. With the acknowledgment that we may have missed a remotely located burner here and there, our final census shows a total of 90 tepee burners located in Humboldt County. We have subdivided these into three groups: 58 normally operating burners, 10 burners operated less than one day per week, and 22 abandoned burners not in use.

With a few gratifying exceptions, most of the burners were found in a rather neglected state of repair - doors missing, poorly sealed at base, gaping holes in the sides, screen sections entirely missing, blowers not operating, and a general state of disrepair. These features all contribute to inefficient combustion of wood wastes and many excessively smoky burners. Most of the burners had far too much excess air to allow proper combustion of the wood volatiles being driven off the fuel pile. Anytime a person can walk up to a burner and lay his hand on the metal surface, that burner is operating with too much excess air or is greatly oversized for the amount of wood wastes being consumed.

In the newly adopted regulations of the Humboldt County Air Pollution Control District no specific tepee burner construction features have been required as is the present policy in Oregon and other lumbering areas. Any burner that consistently meets the Ringelmann No. 2 requirement of Rule 50 is a satisfactory burner regardless of how the operator accomplishes this objective. With the cooperation of the local lumbering industry, we hope that all tepee burners can soon be brought into compliance with the Ringelmann No. 2 requirement.

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HUMBOLDT COUNTY

AIR POLLUTION CONTROL DISTRICT

N E W S L E T T E R

Vol. 1, No. 3 Third Quarter - 1969

5630 South Broadway, Eureka, California 95501

C. P. Sassenrath, Director (707) 443-3091

CLEANER AIR WEEK
October 19-25, 1969

President Nixon has stated that Cleaner Air Week serves to remind individual citizens of their responsibilities if we are to decontaminate the air we breathe. Thus, again this year as every year since 1949, the Air Pollution Control Association is sponsoring a program to promote the control of air pollution and inform the citizens of the ever increasing problems of maintaining a clean air environment.

Cleaner Air Week activities will commence on October 19 with the showing of a new film, "TO CLEAR THE AIR," on TV Station KVIQ, Channel 6. This film was produced by the California Air Resources Board and portrays the major air pollution problems in California.

As part of its public information program during Cleaner Air Week, a representative of the Humboldt County Air Pollution Control District will show a short filmstrip and speak to any interested civic groups pertaining to air pollution problems nationwide and here in Humboldt County.

Every citizen is requested to become aware of his or her responsibilities to help provide more effective air pollution control during Cleaner Air Week and throughout the year:

1. Do not burn trash of the type that causes excessive smoke and odor in the neighborhood. Rubber, plastics, and wet materials should be placed in garbage cans to be hauled away to a central dumping area instead of being burned.

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CALIFORNIA AIR QUALITY CRITERIA

Interest was low at the July 25, 1969, public hearing held by the California Air Resources Board in Eureka. This general lack of public concern regarding air quality criteria was apparent at all five recent public hearings held around the state. The Eureka hearing had a handful of industry and government representatives present and a single representative from one civic organization -- The League of Women Voters.

The meeting was conducted by Dr. A. J. Haagen-Smit, Chairman of the California Air Resources Board. The main topics of discussion centered around the standards for hydrogen sulfide and particulate matter emissions. Dr. Haagen-Smit questioned Mr. Sassenrath, Humboldt County APCO, about tepee burners and their associated air contaminant problems. Mr. Sassenrath elaborated on the problems of wood waste disposal in Humboldt County and described some of the recent activities of the local air pollution control department.

The proposed California air quality standards call for air pollution concentrations to be controlled below the following values:

Oxidant (including ozone) - 0.10 ppm for 1 hour.
Nitrogen dioxide - 0.25 ppm for 1 hour.
Carbon monoxide - 20 ppm for 1 hour.
Sulfur dioxide - 0.10 ppm for 24 hours and 0.5 ppm for 1 hour.
Hydrogen sulfide - 0.03 ppm for 1 hour.
Particulate matter - 100 micrograms per cubic meter.

(Continued on Page 3)

AIR SAMPLE SITES SELECTED

A total of 14 air sampling locations have been chosen in Humboldt County for determination of particulate matter concentrations in the atmosphere. Sampling schedules will vary from once a week at the Eureka and Arcata stations to once every two months in Garberville, Orick, and Hoopa. Other indicators of air pollution such as oxidant, nitrogen dioxide and carbon monoxide will be measured each month in Eureka and Arcata and an occasional measurement will be taken in other possible suspect areas.

This expanded air pollution monitoring schedule is in addition to the sulfur compound monitoring program planned for the pulp mill odor affected area.

We hope to present a compilation of test results in our next bulletin.

TELEPHONE RECORDER INSTALLED

After numerous requests by the League of Women Voters and the Citizens for Clean Air, a telephone-recorder has been installed to receive complaints or other business calls during non-office hours. Persons may now Contact the Humboldt County Air Pollution Control District at any time --- 24 hours a day, including weekends. The number to call is 443-3091.

Cleaner Air Week, Continuation

2. Inspect and clean out your backyard incinerators to improve burning efficiency, and only burn papers or dry combustibles. Replace screens if deteriorated.
3. Check over car exhaust systems and service emission control devices.
4. Be alert to suspected air pollution violations and report them to the Air Pollution Control District (443-3091).

STUDENTS AND TEACHERS

Personnel of the Humboldt County Air Pollution Control District were recently involved in several air pollution control and related training courses conducted in various areas of the state. Mel Edlund, Air Pollution Chemist, attended a specialized three-day training session on gas chromatography given by the Varian Corp. in the San Francisco Bay Area.

Charles Sassenrath and Ken Corbin completed a course in "Visual Emission Evaluation" conducted by the National Air Pollution Control Administration in Fresno. This was a one-week course covering combustion principles, visible classification of smoke, and the legal aspects of air pollution control.

Mr. Sassenrath turned professor for a day while he presented a series of lectures on "Air Pollution Problems Associated with the Lumber and Pulp Industry" for the Air Pollution Control Institute at the University of Southern California in Los Angeles.

OPERATING PERMITS ISSUED

During the past three months approximately twenty operating permits have been issued by the Humboldt County Air Pollution Control District. Most of these permits were for power boilers which burn either fuel oil or hog fuel. Power boilers which are fired exclusively by natural gas or LPG do not require an operating permit. All power boilers operated in Humboldt County are required to meet Rule 50 of the Regulations which specifies that the stack shall not discharge smoke darker than Ringelmann No. 2 for a period of time in excess of three minutes in any one hour.

Permits were also issued for two hot mix asphalt plants, one of which is presently operating in Arcata and another planned for construction in the Blue Lake area.

Within the next few weeks permit application forms will be sent to all tepee burner operators for their completion prior to the January 1, 1970, deadline.

California Air Quality Criteria, Cont.

Oxidant is usually created by the action of sunlight on the hydrocarbons and nitrogen dioxide exhausted from automobiles. This typical characteristic of photochemical smog is not presently a problem in Humboldt County. The highest values recorded to date were 0.02 ppm, which is less than one-third the state standard.

Nitrogen dioxide is generated from any high temperature fuel burning operation in addition to the automobile exhaust source mentioned above. Measurements in Humboldt County show maximum values only one-tenth as high as the 0.25 standard.

Carbon dioxide is created by incomplete combustion in automobiles and other fuel burning operations. Measurements of this air contaminant have not yet started in Humboldt County.

Sulfur dioxide pollution, which is a major concern in the eastern part of the United States, originates mostly from the burning of high sulfur content fossel fuels. Concentration of this pollutant is extremely low in Humboldt County, with all values recorded to date less than 0.02 ppm.

Hydrogen sulfide is formed by the two pulp mills and is one of the most prevalent and noticeable contaminants in the Eureka area. Recent measurements have shown results as high as 0.027 ppm, which are only slightly below the proposed state standard of 0.030 ppm. A program of routine area sampling and new analytical techniques are being set up to more accurately monitor in the odor affected areas. Measurement of this contaminant and other odorous sulfur compounds is the primary investigation being conducted by our laboratory.

Particulate matter in the atmosphere is the principle reason for the hazy conditions noted in the Humboldt Bay area in the late summer and early fall. Recent measurements have indicated suspended particulate matter greatly in excess of the state standard of 100 micrograms per cubic meter. The maximum value recorded to date in Humboldt County was 179 micrograms per cubic meter at Samoa. This strict state standard can only be met by reduced and more efficient burning of trash, rubbish and lumber mill wood wastes in Humboldt County.

An additional particulate matter standard proposed by the Air Resources Board calls for a visibility of not less than 7½ miles at times when the relative humidity is less than 70%. Since the relative humidity in the Humboldt Bay area is almost always in excess of 70%, this standard cannot be satisfactorily applied locally.

Future bulletins will report more detailed results of air monitoring studies as the programs are expanded into other areas of the county.

HEARING BOARD APPOINTED

The Humboldt County Board of Supervisors has appointed three members to the Hearing Board of the Humboldt County Air Pollution Control District. Those persons appointed are: John Morrison, attorney, for a one-year term; Lawrence Truitt, attorney, for a two-year term; and Andrew Kennedy, registered mechanical engineer, for a three-year term.

Compensation for Hearing Board members has been set at $30.00 for each hearing session attended.

The main duty of the Hearing Board will be to serve as an appellate body for review and interpretation of enforcement procedures of the Humboldt County Air Pollution Control District Rules and Regulations. This Board will be responsible for the granting of variances and will have final jurisdiction regarding the issuance of operating permits.

The first meeting of the Hearing Board will probably be held in late October, at which time open burning permits denied by the control officer will be reviewed.

TEPEE TOPICS

Federal, state and county air pollution regulations pertaining to tepee burners were explained at a meeting with lumber industry representatives on September 16. These regulations require that smoke emitted from tepee burners be no greater in density than Ringelmann No. 2 or 40 percent opacity. (Ringelmann No. 2 is a visual system for measuring grey or black smoke and 40 percent opacity is used to measure white or colored smoke.)

Forty percent opacity means that if a person looks at the top of a tepee burner, the smoke produced should only obscure 40 percent of a person's visibility when looking through the smoke plume at recognizable background features.

Smoke can be eliminated in almost all cases if the burner is operated so the outside shell is kept at a temperature above 500° F. A stepwise program of burner improvements was outlined for accomplishing better burning efficiency.

Mr. Ben Ford of the California Air Resources Board pointed out that the present sawdust burning problems cannot readily be solved in the old style burners normally used in Humboldt County. They have developed new tepee burner modifications for improved burning of sawdust, shavings, and sander dust. Addition of a new center refractory core and proper use of auxillary fuel has allowed them to greatly reduce the burner startup time in studies conducted by the State in Shasta County. Slides and a color movie of the new burning system showed the high intensity cyclonic burning which occurred in the center refractory core.

Mr. Sassenrath reported on several new tepee burner systems inspected on a recent visit to Oregon and noted that burners there were much better maintained.

Industry representatives requested that the State of California assist in the development of waste wood utilization methods. It was also suggested that the lumber industry form a cooperative program to seek greater waste utilization and improved burner operation.

(Cont. next column)

STATE ODOR SURVEY

During the months of June, July and August the Humboldt County Air Pollution Control District assisted the California Air Resources Board in conducting a special community odor study in the Eureka area. Ambient air samples were taken at three locations within the city and these samples were analyzed to determine the concentration of odorous sulfur compounds downwind from their point of origin. Over 1,000 individual air samples were collected during this study and analyzed at the new laboratory of the Humboldt County Air Pollution Control District. The ambient air sampling program was conducted under the supervision of Mr. Ben Ford of the California Air Resources Board.

In conjunction with the air sampling program, specific odor measurements were continually taken in the three sample areas for later correlation with the chemical determinations. Odor measurements were coordinated by Mr. George Sanders from the State of California Air and Industrial Hygiene Laboratory.

The culmination of this project was a socio-economic survey conducted in the three main sample areas to investigate individual reactions to odors and their overall influence on the community. This phase of the program was developed by Dr. Erland Jonson, a noted Swedish sociologist under the direction of Dr. John Goldsmith, Chief of the State of California Environmental Epidemiology Unit.

The Humboldt County Air Pollution Control District was proud to have been of service for this comprehensive study and is anxiously awaiting the final report.

Tepee Topics, Continued

Tepee burner permit applications will be mailed to all operators within the next few months in order to meet the January 1, 1970, permit deadline specified in the Rules and Regulations of the Humboldt County Air Pollution Control District.

STEAM CARS -- YES OR NO

Air pollution caused by automobiles varies greatly throughout California: In Los Angeles autos cause 90% of the pollution problems; in the San Francisco Bay area, 65% of the problems; while in Humboldt County they are responsible for less than one-third the total air pollution contamination. Internal combustion engines release unburned hydrocarbons, carbon monoxide, nitrogen oxides and particulate matter. These materials provide the essential ingredients to cause the formation of photochemical smog.

Numerous control devices have been developed by the auto manufacturers to limit the quantity of these emissions and significant improvements have been made. However, the steam-powered car far surpasses the auto makers' wildest dreams as far as reduced pollutant emissions are concerned. Steam car designs far different from the old Stanley Steamer are being developed by enterprising firms, hopefully foreseeing the development of an entirely new mode of automotive power.

To understand why all this effort is being placed on steam car design, one only has to visit the larger cities during the height of a smog season or glance at the following table comparing pollutant emissions from internal combustion engines with those from a steam-powered vehicle. Can we afford not to develop a steam car?

Pollutant	Internal Combustion Engines			*Steam car
	Uncontrolled	1970 Standards	1974 Standards	
Hydrocarbons	1,500 ppm	180 ppm	125 ppm	20 ppm
Carbon Monoxide	30,000 ppm	10,000 ppm	10,000 ppm	500 ppm
Nitrogen Oxides	2,000 ppm	No standard	350 ppm	40 ppm

Concentrations are expressed in ppm -- parts per million of total exhaust gas volume.

*Steam car figures reported by Roy Renner at testimony before U. S. Senate Commerce Committee, May 27-28, 1968.

COMPLAINT SCOREBOARD

Because of the early publication date of this third quarter bulletin, the September complaint figures have not been completely compiled. They will be listed in the next bulletin.

	July	August
Smoke	13	6
Fallout	1	3
Pulp mill odor	86	42
Other odors	1	0

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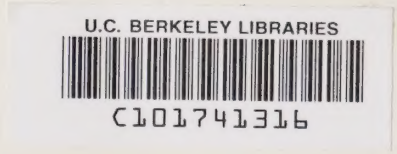

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